GEMMOGRAPHICAL TABLES

FOR THE USE OF

Diamond & Gem Merchants,

Jewellers & Students.

Exhibiting in Tabulated Form

The distinguishing characteristics

OF

Rough and Cut Gems,

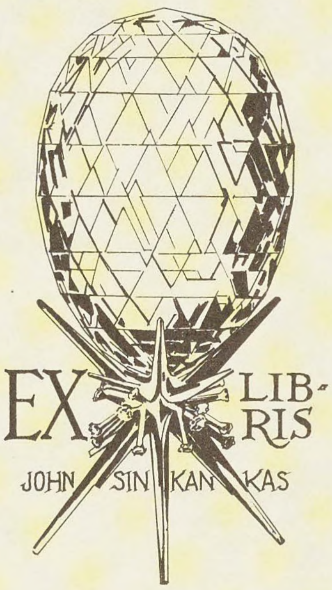
BY

W. J. Lewis Abbott, F.G.S.

Cat 3.00

F Gordon Andrews
July 11, 1967

OF·GEMS·&c GEM·CUTTING GEMSTONES·OF·NORTH·AMERICA·PROSPECTING·FOR·GEM STONES·AND MINERALS MINERALOGY·EMERALD·AND·OTHER·BERYLS·CATALOG



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Gemmographical Tables,

GIVING THE

Chemical Composition, Optical and Physical Properties

OF THE

GEMS.

John Sinkankas
7/67

Tables of Specific Gravities, Hardness, Crystalline Forms, Cleavage, &c.
Illustrations and Descriptions of Crystalline Forms of Gems.
Names and Colors of Two Hundred Varieties.
Twin Colors of Gems as seen in the Dichroscope.
(Arranged in Tables to be removed and framed for constant reference when desired).

BY

W. J. LEWIS ABBOTT, F.G.S., &c.

Lecturer on Gemmology at the Polytechnic Institute, Regent Street, W.

London:
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Price 1/6 Nett.

TABLE I.

NAMES AND

Arranged by

TRANSPARENT.

NAME.	COLORS.
Achroite	White.
Alexandrite	Leaf or dark olive green by natural light, raspberry by artificial light.
Almandine	Brownish red, scarlet to purple.
Amber	Yellow to hyacinth.
Amethyst	Purple.
Anatase	Browns, blue-black.
Andalusite	Dark greens to browns.
Aquamarine	Colorless to sea greens and blues.
Arendalite	Dark green.
Asparagus Stone	Asparagus yellow.
Axinite	Puce clove and plum brown.
Balas-Ruby	Amethystine pink.
Beryl	Yellows, blues, browns.
Beryllonite	Colorless.
Bobrowska Garnet	Brownish green.
Brilliant	All colors.
Cairngorm	Smoky yellows.
Cat's eye	Yellows, browns, greens, reds.
Chlorospinel	Grass green.
Chrysoberyl	Yellows, greens, browns, blues.
Chrysolite	Yellows.
Cinnamon-stone	Cinnamon color.
Citrite	Citron color.
Cordierite	Lavender blue.
Cymophane	Silky yellows, etc.
Cyprine	Sky blue.
Damburite	Yellow.
Delphinite	Yellowish green.
Diamond	Black, white, and every color.
Diaspore	Colorless, yellows, browns.
Dichroite	Violet.
Dioptase	Emerald green.
Disthene	Blues and whites.
Emerald	Greens.
Epidote	Bottle greens to brown.
Escherite	Yellowish and greenish brown.
Essonite	Cinnamon color.
Euclase	Colorless, greens, blues.
False Topaz	Yellows.
Fleches d'amour	Colorless with colored lines.
Garnet	Reds, purple, browns, yellows, greens
Greenovite	Rose red.
Grossularite	Yellowish green.
Hiddenite	Emerald green.
Hyacinth	Hyacinth red.
Idocrase	Hair brown, dark greens.
Indicolite	Indigo blue.
Iolite	Lavender to dark blue.
Jacinth	Tawny cinnamon.
Jargoon	Whites, yellows, greens, etc.
Kyanite (cyanite)	White to sapphire blue.
Lederite	Browns, etc.
Ligurite	Apple green.
Love's Arrows	Colorless, with variously colored filaments.
Marekanite	Browns, blues.
Melanite	Black.
Microlite	Yellows, browns, reds.
Muller's glass	Colorless.
Natronspodumene	Colorless to pink.
Nephelite	Colorless, greens, browns.
Nova Mina	Colorless.
Obsidian	Dark green, browns, reds.
Oisanite	Yellowish green.
Olivine	Greens.
Ouvarowite	Emerald green.
Peridot	Pistachio green.
Phenacite	White.
Pictite	Yellow, reddish green.
Pyrope	Dark red.
Quartz	Colorless, browns, yellows, etc.
Rose Quartz	Pink.
Romanzovite	Brown.
Rhodonite	Pink to greenish yellow.
Ruby	Reds.
Rubicelle	Yellow, orange, red.
Rubellite	Pink.
Sagenite	Colorless, with colored lines.
Spessarite	Hyacinth red to violet.
Sphene	Fiery yellows, browns, etc.
Spinel	Violet, blues, greens, pinks, etc.
Spodumene	Yellows.
Staurolite	Reddish brown.
Succinite	Amber.
Titanite	Yellows, browns.
Thallite	Yellowish green.
Thulite	Rose red.
Topaz	Yellows, pinks, hyacinths, etc.
Topazolite	Yellow.
Tourmaline	Dark blues, greens, pinks, etc.
Triphane	Light yellows.
Uwarowite	Green.
Vesuvianite	Hair brown, dark greens.
White Sapphire	White.
White Topaz	White.
Withamite	Reds, yellows.
Wiluite	Greens, etc.
Xanthite	Yellowish brown.
Yanolite	Violet.
Yellow Beryl	Brown.
Yellow Sapphire	Yellow.
Yttergarnet	Yellows, greens, browns, etc.
Zianite	Blue.
Zircon	Almost all colors.

COLORS OF GEMS.

W. J. LEWIS ABBOTT, F.G.S.

NON-TRANSPARENT.

NAME.	COLORS.
Adularia	Sheeny white.
Agate	In bands of various hues.
Agatised Wood	Browns, reds, etc.
Amber	All shades of yellow to hyacinth red.
Amazonite	Green white spangles.
Aphrizite	Black.
Asteria	White, blues, browns, reds.
Aventurine	Brown spangled.
Beryl	Yellow brown.
Bronzite	Browns, dark blues, etc.
Bloodstone	Green with red spots.
Breccia	Angular patches of various colors.
Cacholong	Bluish white.
Callaite	Blue.
Callanite	Blue.
Carbuncle	Reds.
Cat's eye	Yellows, greens, browns.
Cylonite	Black.
Chalcedony	Blues, whites.
Chalcedonyx	Layers of blues and whites.
Chlorastrolite	Green with lighter green stars.
Chlorophane	Iridescent under water.
Chrysophase	Apple green.
Coral	White, pinks, black.
Cornelian	Reds, whites, etc.
Crocidolite	Blues, greens, yellows, reds.
Dendrites	Milky, with tree-like markings.
Egyptian Jasper	Mixed browns.
Feldspars	Whites, yellows, pinks.
Fibrolite	Grey, browns, greens.
Fire Opal	Iridised pinks.
Fossil Coral	Pinks, yellows, etc.
Girasole	Bluish white with fiery reflections.
Haüynite	Blues, asparagus green.
Heliotrope	Green, spotted red.
Hydrophane	Iridescent under water.
Hypersthine	Greenish brown.
Jade	Blue, green, white.
Jasper	Red, yellow, green, blue.
Jet	Black.
Krokidolite	Violets to red.
Labradorite	Grey, with rainbow reflections.
Lapis Lazuli	Blue, red, green.
Lumachella	Grey, with fiery rainbow reflections.
Lunaria	White sheen (moonstone).
Lydite	Black.
Malachite	Greens.
Microcline	Greens.
Moonstone	Chatoyant.
Moss Agate	Slightly milky, with moss-like markings of various hues.
Nephrite	Greens, whites.
Nicolo	Bluish.
Obsidian	Greens, reds, white.
Odontolite	Sky blue.
Oligoclase	Whites, etc.
Onyx	Black and white.
Opal	Milky iridised.
Opal Agate	Reds, browns, etc.
Orthoclase	Pinks, whites, etc.
Pearls	Blacks, whites, and nearly every hue.
Peristerite	Iridescent (like a pigeon's neck).
Pisolite	Rings of all colors.
Pistacite	Blues, browns, etc.
Plasma	Leek-green.
Pleonast	Black.
Prase	Leek-green.
Quartz	Colorless and variously colored.
Quartz Cat's-eye	Greys, yellows, browns with rays.
Quartz Conglomerate	White spotted.
Rhodonite	Pink.
Rose Quartz	Pink.
Rose Opal	Pink to brown.
Ruby Cat's-eye	Pink with white line.
Sapphire Cat's-eye	Blue-white ray.
Saussurite	Green.
Sard	Reds and browns transmitting red.
Sardonyx	Colored layers of Sard.
Semi-opal	Whites, yellows, reds.
Star-Garnet	Red, with white star.
Star-Ruby	Light red, with white star.
Star-Sapphire	Blue, with white star.
Sunstone	Golden and brown iridised spangle
Turquoise	Blue.
Ultramarine	Dark blue.
Vaalite	Dark green.
Verd Antique	Mixed light and dark green.
Williamsite	Greens.
Wood Opal	Reds, browns, etc.
Xenolite	Browns, gray, green.
Xylonite	Browns, yellows, etc.,
Yellow Beryl	Yellow.
Yellow Jasper	Yellow.
Zoisite	Apple, also transparent green, etc.
Zonochlorite	Banded yellows.

Table II.

Table of the Chemical Composition

ARRANGED BY

	Silica.	Alumina.	Glucina.	Lime.	Carbon.	Phosphoric Acid.	Zirconia.	Magnesia.	Iron Oxyds.	Water.	Titanum Oxyd.	Soda.	Potash.	Chromium Oxyd.	Fluorine.	Boron Trioxyd.	Lithia.	Copper Oxyd.	Manganese Oxyds.
Diamond	...	...	...	...	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Corundum—																			
Ruby	...	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sapphire	...	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spinel	...	72	...	...	...	...	...	28	...	...	...	...	...	...	...	...	...	...	...
Chrysoberyl	...	76	18	...	...	...	...	..	4	...	...	...	...	...	...	...	...	...	...
Rutile	...	...	...	...	...	...	...	...	1·53	...	98·4	...	...	...	...	...	...	...	...
Diaspore	...	83	...	...	...	...	...	...	3	14·8	...	...	...	...	...	...	...	...	...
Quartz Family	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spodumene	64	29	...	...	...	...	...	...	·4	...	...	...	...	...	...	...	6	...	...
Beryls—																			
Emerald	66·8	19·1	14·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aquamarine	66·8	19·1	14·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Olivine	41	...	...	...	...	...	...	50	9	...	...	...	...	...	...	...	...	...	...
Phenacite	54.2	...	45·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Garnets—																			
Essonite	40	23	...	30	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...
Almandine	36	21	...	2	...	...	...	4	34	...	...	...	...	...	...	...	...	...	1
Uwarowite	37	6	...	33	...	...	...	...	...	...	...	...	...	23	...	...	...	...	...
Zircon	33	...	...	...	...	...	67	...	...	...	...	...	...	...	...	...	...	...	...
Idocrase	37·5	18·5	...	33·7	...	...	...	3	6·2	...	...	...	...	...	...	...	...	...	...
Epidote	38	22	...	23	...	...	...	...	25	2	...	...	...	...	...	...	...	...	...
Axinite	43	16	...	20	...	...	...	2	10	...	...	...	1	...	...	5	...	...	3
Iolite	49	32	...	...	...	...	...	9	7	...	...	...	...	...	...	...	...	...	...
Lapis Lazuli	46	14·5	...	17·5	...	...	...	...	3	2·	...	...	...	...	...	...	...	S 4	C 10
Feldspars—																			
Labradorite	55·7	26·5	...	11	...	...	...	...	1·2	·5	...	4	...	...	...	...	...	...	...
Oligoclase	61·3	22.8	...	4·8	...	...	...	...	·3	...	...	8·5	1·3	...	...	...	...	...	...
Orthoclase	64	19·4	...	·4	...	...	...	·2	...	...	...	...	14·9	...	...	...	...	...	...
Tourmaline	38	34	...	·6	...	·1	...	11·2	1·4	...	...	2·5	.5	...	·2	9·4	...	...	...
Cyanite	36·4	63·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Topaz	34	58·4	...	...	...	...	...	...	...	...	...	...	...	...	15	...	...	...	...
Euclase	41	35	17	...	...	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Sphene	31	...	...	27	...	...	...	...	1	...	41	...	...	...	...	...	...	...	...
Dioptase	36 6	...	...	...	...	...	...	...	1	12·3	...	...	...	...	...	...	...	44·9	...
Chlorastrolite	37	25·5	...	20	...	...	...	...	6·5	7·2	...	3·5	...	...	...	...	...	...	...
Turquoise	...	40·2	...	...	...	32·8	...	...	2	19	...	...	...	...	...	...	...	5·3	·4
Callainite	...	30·8	...	...	...	42·4	...	...	...	24	...	...	...	...	...	...	...	...	...

In the above Table the composition of the species or type of a division is given without reference to Ruby, "Oriental Topaz," "Oriental Emerald," and "Oriental Amethyst," as the slight differences that have been the same whether it be the clear, Cat's Eye, or Alexandrite varieties. The Quartz family is given as being composed crystalline varieties, such as Amethysts, "Scotch Topazes," Cairngorms, Rock Crystal, &c.; as well as the Crypto- same, with the addition of a slight and varying quantity of water. In the optical qualities, M equals monochroic,

and Physical Properties of Gems.

W. J. LEWIS ABBOTT, F.G.S

Specific Gravity.	Hardness.	Optical Qualities.	Crystaline System.	Common Forms.	Cleavage.	
3·52	10	M	Isometric	Octdra, fcttd. & plain, macles, twins	Octahedral, highly perfect	Diamond
						Corundum—
3·94	8¾	D	Hexagonal	Six-sided & double pyramid prisms	Basal and rhombohedral	Ruby
4·00	9	D	Hexagonal	do. do do.	do. do.	Sapphire
3·62	8	M	Isometric	Octahedra, tetrahedra, and macles	Octahedral, highly perfect	Spinel
...	8½	D	Trimetric	Flat prisms and macles	Prismatic, fair	Chrysoberyl
4·2	6	D	Dimetric	Octahedra, prisms and twins	do.	Rutile
3·39	7	D	Trimetric	Alcicular, oval in outline	Brachy-pinacoidal, perfect	Diaspore
2·66	7	D	Hexagonal	Six-sided double pyds. and prisms	Highly imperfect	Quartz Family
3·2	7	D	Monoclinic	Flat prisms with pyramids	Prismatic, highly perfect, & pydl.	Spodumene
						Beryls—
2·71	7¾	D	Hexagonal	Six and twelve-sided prisms	Extremely rare	Emerald
2·70	8	D	Hexagonal	do. do.	do.	Aquamarine
3·37	6¼	D	Trimetric	Short prisms with pyramids	Prismatic	Olivine
2·97	7½	D	Hexagonal	Prisms and Rhombohedral	Rhombohedral	Phenacite
						Garnets—
3·66	7	M	Isometric	Rhombic & pentagonal dodecahedra	Rhombic dodecahedral	Essonite
4·27	7¼	M	Isometric	do. do. do.	do. do.	Almandine
3·5	7½	M	Isometric	do. do. do.	do. do.	Uwarowite
4 to 4·8	7½	D	Dimetric	Square prisms with low pyramids	Indistinct.	Zircon
3·4	6½	D	Dimetric	do. do. do. do. do. & bsl. plns.	do.	Idocrase
3·2—·5	6½	D	Monoclinic	Long, facetted flat prisms	Prismatic, perfect	Epidote
3·29	7	D	Triclinic	" Axe shape "	Prismatic fair	Axinite
2·63	7¼	D	Trimetric	Short prisms	Imperfect	Iolite
2·4	5	...	Isometric	Massive	Dodecahedral, imperfect	Lapis Lazuli
						Feldspars—
2·70	6	...	Triclinic	do.	Basal, perfect ; prismatic, less so	Labradorite
2·6	6—7	...	Triclinic	do.	do. do.	Oligoclase
2·5	6½	...	Monoclinic	do.	do. do.	Orthoclase
3·15	7½	D	Hexagonal	Facetted prisms with low pyramids	Rhombohedral, perfect	Tourmaline
3·5—·7	5—7	D	Triclinic	Rhombic prisms	Basal, highly perfect	Cyanite
3·5	8	D	Trimetric	Long, flat prisms	Prismatic	Topaz
3·1	7½	D	Monoclinic	do. do. with pyds.	Do. highly perfect ; basal imprfct.	Euclase
3·5	5½	D	Monoclinic	Wedge-shape and twins	Prismatic	Sphene
3·35	5	D	Hexagonal	Six-sided prisms with three-sided pyds	Rhombohedral, perfect	Dioptase
3·2	6	...	Stellate	Rolled pebbles	None	Chloralastralite
2·75	6	...	Amorphous	Pebbles, veins and incrustings	do.	Turquoise
2·5	4	...	...	do. do. do.	do.	Callainite

the numerous varieties of them that occur. Thus, the composition of Corundum will also be that of Sapphire, found are too insignificant and uncertain to mention. So with Chrysoberyl : the composition of the species is practically wholly of Silicia, as the amount of colouring matter in any variety is too small for tabulation. It includes all clear or crystalline, such as Cornelians, Sards, Onyxes, Chrysoprase, Bloodstone, Jaspers, &c., the composition of Opal being the and D equals dichroic.

TABLE III.

THE CRYSTALLINE

— COLLECTED AND ARRANGED BY

Isometric System.

GARNETS.

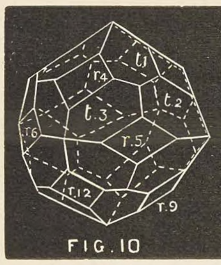


FIG. 10

Deltahedron
and
Rhombic
dodecahedron.

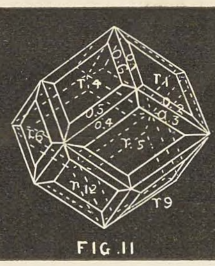


FIG. 11

Rhombic dodecahedron
and
Six faced
octahedron.

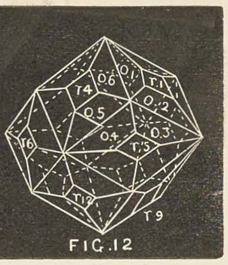


FIG. 12

Six faced
Octahedron
R. dodeca.

Isometric System.

GARNETS.

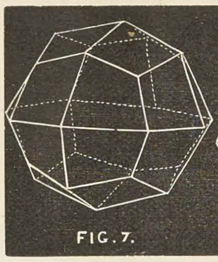


FIG. 7.

Deltahedron

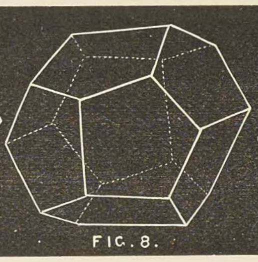


FIG. 8.

Pentagonal
dodecahedron.

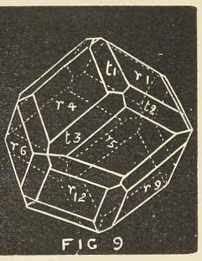


FIG 9

Rhombic
dodecahedron
and
deltahedron.

Isometric System.

SPINEL.

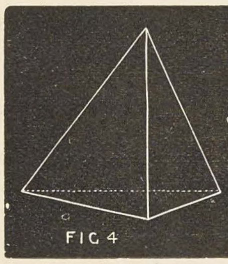


FIG 4

Tetrahedron.

Octahedron,
commonest form.

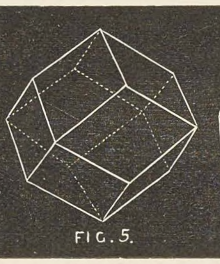


FIG. 5.

Rhombic
dodecahedron.

Also of Garnet.

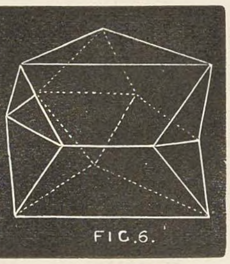


FIG. 6.

Octahedral
macle.

Dimetric System.

ZIRCON.

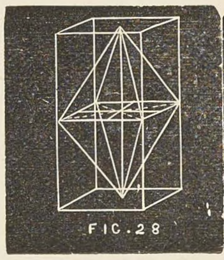


FIG. 28

Position of axes
in
dimetric system.

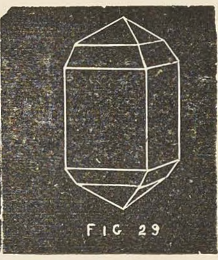


FIG 29

Prism
with
double
pyramids.

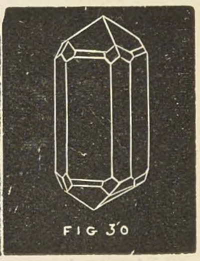


FIG 30

Proto and deutro
prism
and
pyramids.

Dimetric System

IDOCRASE.

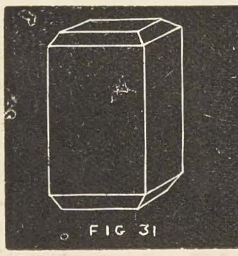


FIG 31

Prism, low pyramid
and
basal plane.

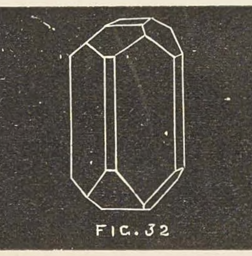


FIG. 32

Pro. and deutro prism
2nd. pyd.,
and basal p.

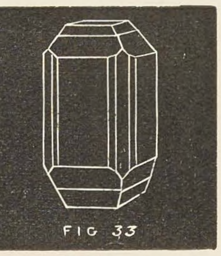


FIG 33

Multiple prism,
deutro pyd.,
and basal plane.

Trimetric System.

TOPAZ.

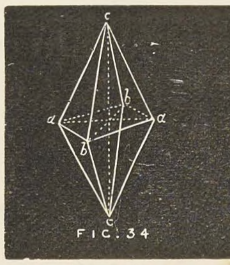


FIG. 34

Axes of
trimetric
pyramid.

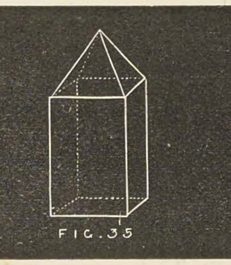


FIG. 35

Simple prism
and
pyramid.

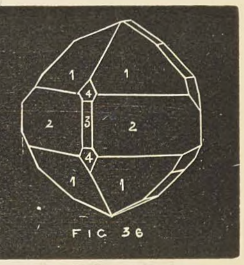


FIG 36

Prisms,
pyramids,
and domes.

Trimetric System.

CHRYSOBERYL.

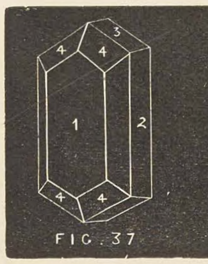


FIG. 37

Prisms
with
brachy dome
and pyramid.

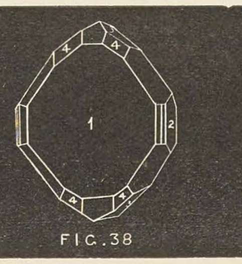


FIG. 38

Broad prisms
other pyramids
and domes.

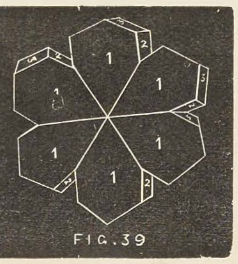


FIG. 39

Alexandrite
macle.

Trimetric System.

CHRYSOLITE.

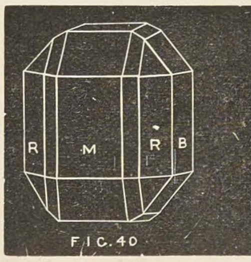


FIG. 40

Pinacoids
prisms,
similar pyds.
and basal planes.

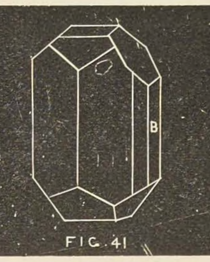


FIG. 41

Large prism
small brachy pin,
b. and m. domes,
and basal p.

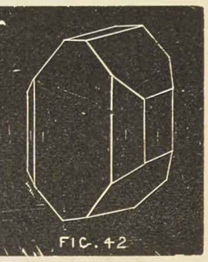


FIG. 42

Large b. pin,
small m. pin,
prism, m. dome
basal p.

FORMS OF GEMS.

W. J. LEWIS ABBOTT, F.G.S. —

Hexagonal System.

RUBY & SAPPHIRE.

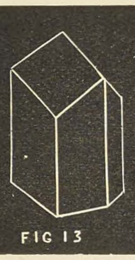


FIG 13

Hexagonal prism and rhombohedron.

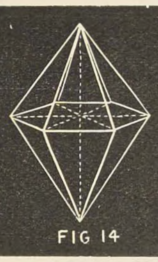


FIG 14

Double hexagonal pyramid.

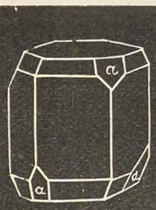


FIG 15

Hexagonal prism, pyramids, and basal pl.

Hexagonal System.

EMERALD.

Viewed Obliquely.

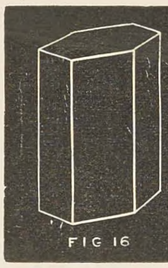


FIG 16

Hexagonal prism and basal pl.

FIG 17

Hexagonal prism, do. pyd., and basal pl.

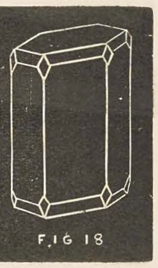


FIG 18

Hexagonal prism, pro. and d. pyd., and basal pl.

Hexagonal System.

QUARTZ, AMETHYST.

FIG. 25

Prism
d pyramids.

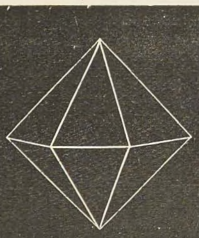


FIG. 26

Double pyramid.

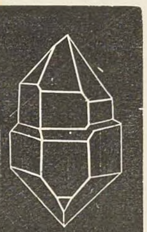


FIG. 27

Parallel or step form.

Hexagonal System.

PHENACITE.

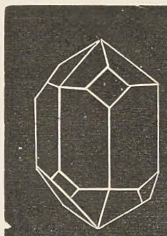


FIG. 22

Prism with pyramids and hemimorphic ditto.

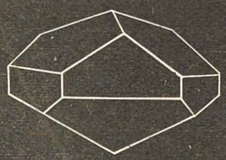


FIG. 23

Prism with alternate rhombohedra.

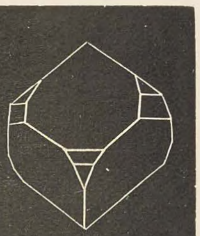


FIG. 24

Truncated rhombohedron.

Hexagonal System.

TOURMALINE.

FIG. 19

Striated distorted prism.

FIG. 20

Prism with rhombohedral termination.

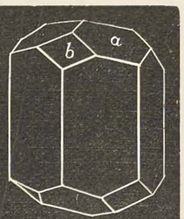


FIG. 21

Prism with double rhombohedral terminations.

Monoclinic System.

EPIDOTE.

FIG. 52

Horizontal prism.

FIG. 53

Usual chisel edge shape.

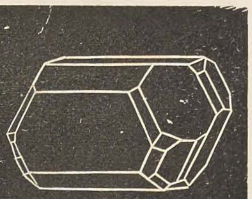


FIG. 54

Complex horizontal prism.

Triclinic System.

AXINITE.

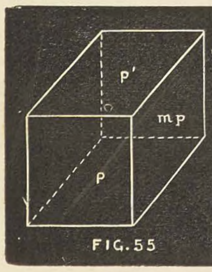


FIG. 55

Macropinacoid prism and pyramid.

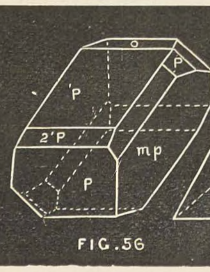


FIG. 56

Mac. pin. prism pyd. and basal pl.

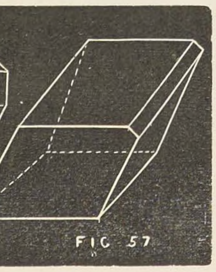


FIG. 57

Usual axe-like form.

Triclinic System.

CYANITE.

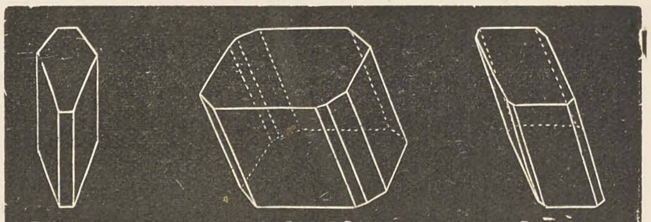


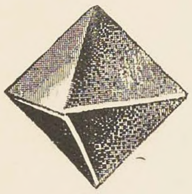
FIG. 58 FIG. 59 FIG. 60

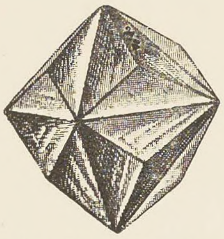
Various doubly oblique prisms.

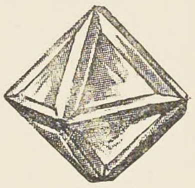
Table IV.

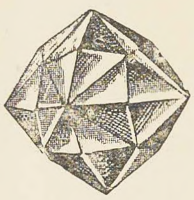
THE CRYSTALLINE FORMS OF DIAMONDS.

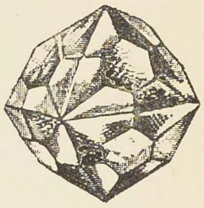
Collected and Arranged by W. J. LEWIS ABBOTT, F.G.S.

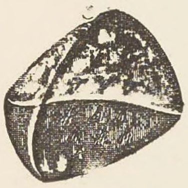

Simple octahedron.

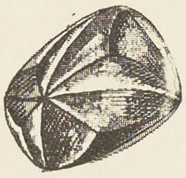

Three-faced octahedron.


Three-faced octahedron combined with octahedron.


Six-faced octahedron.

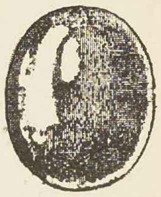

Six-faced octahedron, combined with octahedron.

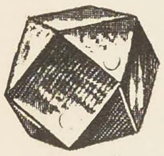

Curved three-faced octahedron with triangular depressions.


Curved three-faced octahedron.


Curved six-faced octahedron.

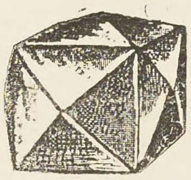

Curved rhombic dodecahedron.


Water-worn diamond, perfectly oval.


Octahedron combined with the cube.


Octahedron combined with the dodecahedron.


Octahedron combined with the four-faced cube.


Four-faced cube.


Octahedron combined with cube and rhombic dodecahedron.

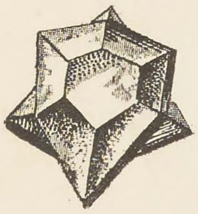

Rhombic-dodecahedron.

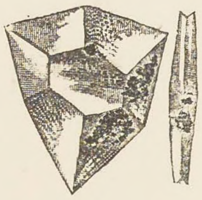

Rhombic-dodecahedron combined with deltahedron.

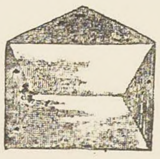

The same with the former faces less developed.


The deltahedron.


The pentagonal dodecahedron.


Double macle, showing faces of the octrahedron and six-faced do.


Single macle, showing same faces.


Octahedral macle.


Tetrahedron.


Three-faced tetrahedron.

Table V.

The Twin Colors of Gems, as seen in the Dichroscope.

Arranged by W. J. LEWIS ABBOTT, F.G.S.

Nominal Color.	Twin Colors.
RUBIES—	
"Fine," slightly amethystine	Deep violet lake. Rosy salmon pink.
"Fine," slightly violet	Amethystine purple. Rose pink.
"Fine," pigeon's blood	Aurora red. Carmine red.
"Fine," rather dark	Magenta lake. Light madder, scarlet lake
Good pale magenta	Deeper magenta. Glossy flesh pink.
Fair, slightly violet, turbid	Violet purple. Tawny sherry.
Dark, rose pink	Mauvish pink. Brownish straw.
Pink, slightly dirty	Salmon pink. Straw yellow.
Pale pink, slightly violet	Purple. Light flesh pink.
Light violet red	Amethystine purple. Glossy rose pink.
Amethystine rose pink	Amethystine. Purple.
Mauvish red	Brilliant purple. Tawny sherry.
Siam	Red violet. Violet red.
Violet shaded pink	Darker than specimen. Lighter than specimen.
SAPPHIRES—	
Blue, fine along optic axis	Dark blue. Dark blue.
Blue, fine across optic axis	Dark blue. Greenish grey.
Blue, ideal	Ultramarine. Greenish straw.
Bluish green, Australian	Dark blue. Emerald green.
Do. do. do. lighter	Blue. Light green.
Do. do. do. still lighter	Light blue. Yellow.
Blue, slightly amethystine	Amethystine blue. Light greenish yellow.
Fair blue	Dark blue. Greenish slate.
Medium blue	Darker blue. Glossy slate.
Lightish blue	Darkish bright blue. Steel grey.
Light blue, bright	Darkish blue. Glossy pale slate.
Amethystine blue	Purple. Violet blue.

Nominal Color.	Twin Colors.
SAPPHIRES—Continued.	
Purple	Red purple. Violet blue.
Yellowish green	Yellowish green. Bluish green.
CHRYSOBERYLS—	
Yellow	Golden brown. Greenish yellow.
Greenish	Sherry brown. Greenish yellow.
Alexandrite by night	Raspberry red. Sage green.
SPODUMENE—	
Light yellow	Deeper yellow. Greenish straw.
EMERALD—	
Fine green	Bluish green. Yellowish green.
Aquamarine	Light sea green. Straw yellow
CHRYSOLITE—	
Lemon yellow	Chrome yellow. Green lemon.
Sage green, dirty	Sea green. Yellowish green.
Peridot	Brown yellow. Pea green.
ZIRCON—	
Green	Yellowish green. Emerald green.
Brown	Pistachio green. Brownish straw.
IOLITE—	
Lavender	Indigo. Buff.
TOURMALINE—	
Red	Dark pink. Salmon.
Blue	Indigo. Gray.
Dark green	Peacock blue. Straw.
Green	Blue green. Pistachio.
Dark yellow	Light golden brown. Yellow.
TOPAZ—	
Yellow	Orange yellow. Lemon yellow.
Brownish	Yellowish green. Puce.
Pink	Rose pink. Yellow.
Sherry pink	Golden yellow Rose pink.
Sauce d'or	Violet pink. Marcasite yellow.

THE USE OF THE DICHROSCOPE.

DICHROIC GEMS:—In using the Dichroscope first focus up the instrument. The specimen must not be viewed along an optic axis, as in this direction all gems are **monochroic,** and both squares of the instrument will appear of the same hue, as pointed out in the case of the fine blue Sapphire. In any other direction a Dichroic Gem will give **different colors** in the two squares. Daylight is best, but an opal covered light will answer, allowance being made for the Phenomenon of **Noctichroism.** The hues of the squares alternate four times in each revolution.

MONOCHROIC GEMS:—A Monochroic Gem, such as a Spinel, will always give two squares of the **same** hue, **in whatever direction it is viewed.** It also presents a far lighter and clearer field, and usually shows **decomposition** in one of the squares.